

Arguments/Remarks

Claims 1 to 10, 15 to 33, 37 to 58 and 63 to 66 are currently pending.

Claims 1, 10, 24, 33, and 58 have been amended. Claims 11 to 14 and 34 to 36 are now cancelled. Claims 63 to 66 have been added.

Support for the amendments to claims 1 and 24 and new claims 63 and 64 can be found in the Specification, e.g., at page 5, page 6, last para., to page 10, and Example A32.

Support for the amendment to claim 58 can be found in the Specification, e.g., at page 52, the sequence listing and the claims as previously filed. Claim 58 has also been amended to conform the term "SEQ ID NO: 2" to the standard guidelines for sequence disclosures.

Support for new claim 65 can be found in the specification examples: E1, page 58; A1, page 58; A2, page 59; A3, page 60; A4, page 60; A5, page 61; A6, page 62; A7, page 62; A8, page 63; A9, page 64; A10, page 64; A11, page 65; A12, page 66; A13, page 66; A14, page 67; A15, page 68; A16, page 68; A17, page 69; A18, page 70; A19, page 71; A23, page 74; A24, page 74; A25, page 75; A26, page 76; E3, page 77; A27, page 77 (wherein Z is benzyloxycarbonyl); A28, page 78; A30, page 79; A36, page 83; A37, page 84; A38, page 84; A39, page 85; E6, page 86; A40, page 86; A41, page 87; A42, page 88; and A43, page 89.

Support for new claim 66 can be found in the specification examples: E2, page 71; A20, page 72; A22, page 73; A29, page 79; A31, page 80; A32, page 80; A33, page 81; A34, page 81; and A35, page 82.

Claim 10, which previously made reference to both claims 1 and 9 has been amended to refer only to claim 1. Support for this amendment can be found in previously presented claims 1, 9 and 10.

Claim 33, which previously made reference to both claims 24 and 32 has been amended to refer only to claim 24. Support for this amendment can be found in previously presented claims 24, 32, and 33.

Claim 41, which previously made reference to both claims 1 and 24 has been amended to refer only to claim 24. Support for this amendment can be found in previously presented claims 1, 24, and 41.

Claim 46, which previously made reference to both claims 11 and 45 has been amended to refer only to claim 1. Support for this amendment can be found in previously presented claims 1, 11, 45, and 46.

Claim 47, which previously made reference to both claims 12 and 45 has been amended to refer only to claim 45. Support for this amendment can be found in previously presented claims 12, 45, and 47.

Claim 53, which previously made reference to both claims 1 and 48 has been amended to refer only to claim 1. Support for this amendment can be found in previously presented claims 1, 48, and 53.

Claim 48 has been amended to replace the language "if desired" with "optionally."

No new matter has been added.

With respect to any claim amendment or cancellations, Applicants have not dedicated to the public or abandoned any unclaimed subject matter, and moreover have not acquiesced to any rejections and/or objections made by the Office. Applicants expressly reserve the right to pursue prosecution of any presently excluded subject matter or claim embodiment in one or more future continuation and/or divisional application(s).

Applicants thank the Office for acknowledging and entering the amendment filed 6/7/2010, and for withdrawing the rejections that are not reiterated in the current Office Action.

Claim Rejections – 35 U.S.C. §103(a)

Claims 1 to 58 have been rejected by the Office as allegedly being unpatentable over McGee et al. WO 94/02501. The Office has alleged that McGee discloses an oligonucleotide derivative comprising a nucleoside building block of the formula (I) of the instant application, wherein R1, R2 and R3 are either H or an alkyl group, and B is a nucleic acid base (pages 7-24, claims 1-69). The Office has also noted in detail particular modifications allegedly described by McGee.

Applicants respectfully note that the pending claims provide subject matter which does not overlap with and is not made obvious by the disclosure of McGee.

Claims 1 and 24 have been amended to recite that B is any of (V2) to (V14), as described in previously pending claims 11 and 34, respectively. These embodiments are not disclosed in or suggested by McGee.

Thus, the subject matter of the pending claims does not overlap with that of McGee. The claimed invention is also not obvious at the time of filing over McGee.

The Office has also alleged that Examples 90 and 91 of McGee show that the 2'-O-alkyl guanosine residues incorporated into an antisense oligonucleotide increase the hybridization specificity of the oligonucleotide for its target nucleic acid. Applicants note respectfully that the pending claims refer not to 2'-O-alkyl nucleotide residues, but to 2'-O-aminoalkoxy residues.

Applicants thus respectfully request withdrawal of this rejection.

Claim Rejections – 35 U.S.C. §103(a)

Claims 57 and 58 stand rejected under 35 U.S.C. §103(a) as allegedly being obvious over Monia et al. (U.S. Patent No. 5,744,362) and McGee.

The Office has alleged that Monia provides 2'-modified oligonucleotides and provides a sequence identical to that of SEQ ID NO: 2 of the instant application.

Applicants respectfully disagree. Applicants respectfully note that Monia only discloses 2'-O-alkyl and O-alkoxyalkyl modifications, whereas the instant application discloses 2'-O-aminoalkoxyalkyl derivatives.

In addition, as noted above, amended claim 1 (from which claims 57 and 58 depend) does not overlap in subject matter and is not made obvious by McGee.

Thus, neither Monia nor McGee nor the combination of the two provides or makes obvious the subject matter of claims 57 and 58.

Applicants thus respectfully request withdrawal of this rejection.

Claim Rejections – 35 U.S.C. §103(a)

Claims 1 – 9 and 11 – 32 stand rejected under §35 U.S.C. 103(a) as allegedly being unpatentable over Ravikumar et al. (U.S. Patent No. 5,571,902) in view of Martin et al. (U.S. Patent No. 5,750,673).

The Office has noted various 2'-sugar modifications allegedly disclosed by Ravikumar.

Applicants respectfully note that Ravikumar discloses oligonucleotides substituted in the 2' position by simple O-alkyl or N-alkyl groups. Martin discloses 2'-O-fluoroalkyl or hydroxyalkyl substituents, but not any amino substituents at the 2' position.

In contrast, the instant application discloses combined O-aminoalkoxy substituents. Neither Ravikumar nor Martin suggest the combination of alkoxy and amino groups into a single 2'-O-substituent.

Furthermore, a comparison of Martin and the instant application demonstrates the superiority of the claimed modification. Martin (at column 20, Table 3, SEQ ID NO: 1) shows the same sequence as in the instant application (at page 91, SEQ ID NO: 3). Martin shows various modifications, including hydroxyalkoxy and fluoroalkoxy substituents in the 2' position, which show increases in T_m (melting temperature) of 1.2 to 1.7 °C. In contrast, the instant application shows different modifications, such as 2'-aminoalkoxy substituents, which show increases in T_m of 1.8 °C. This indicates superior and more stable hybridization to the target nucleic acid with oligonucleotides with the claimed modifications.

Thus, the modifications of the amended claims are not disclosed or made obvious by the disclosures of Ravikumar and Martin. Furthermore, the modifications of the amended claims show superior characteristics to those of Martin.

Withdrawal of the rejection is respectfully requested.

Claim Rejections – 35 U.S.C. §112, second paragraph

Claim 58 stands rejected under 35 U.S.C. §112, second paragraph. The Office has alleged that the term "analogous" renders the claim indefinite.

This term has been deleted from the claim, rendering this rejection moot.

Withdrawal of this rejection is therefore respectfully requested.

Claim Objections

The Office has noted that the phrase "SEQ.ID.NO.2" in claim 58 is not in compliance with standard guidelines for sequence disclosures.

The claim has been amended to recite "SEQ ID NO: 2".

Withdrawal of this claim objection is therefore respectfully requested.

Conclusions

Reconsideration and withdrawal of the rejections and objection in view of the amended claims is hereby requested. In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Office is respectfully requested to withdraw the outstanding rejections of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Office is invited to telephone the undersigned at the number given below. In the event that the Office determines that an extension and/or other relief is required, Applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to the Deposit Account noted above. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Respectfully submitted,

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